The proposed NRP project upgrade will include two major transmission line constructions through parts of Chittenden, Addison, and Rutland Counties. The line upgrades will cross through the towns of: South Burlington, Shelburne, Charlotte, Ferrisburgh, Vergennes, Waltham, New Haven, Middlebury, Salisbury, Brandon, Pittsford, Proctor and West Rutland.

The second step in the Quechee Analysis includes a determination as to whether a project, as proposed, will violate a clear written community standard intended to preserve the aesthetic or scenic beauty of the area. The review included all regional and local standards and goals which have a relation to aesthetics, scenic beauty and/or utilities that we are aware of, including town and regional plans and associated documents. These documents provide a range of information with regard to scenic quality, aesthetics and policies or objectives which may be applicable in reviewing this project. Nonetheless our review yields a conclusion that there are no extant provisions that state specific standards which would be violated by the NRP proposal.

Charlotte, in particular, in its Town Plan states that "It is the objective of the Town that all utilities will be underground" (p.48) and Charlotte has a policy which states that "the Town seeks to protect public roads with high scenic value by placing utility transmission lines underground" (p.99). Under Strategies, the Plan states that "the Town will explore ways to encourage underground placement of utility transmission lines..." (p.99). These objectives and policies do not constitute an absolute requirement that undergrounding be exercised, leaving open other options for mitigation. The scenic roads identified which are near or interact with the corridor are not impacted to the extent that an undue adverse determination is warranted, although in one instance, a crossing of Greenbush Road requires more extensive mitigation than currently offered by VELCO. Without sufficient mitigation, there exists the potential for an undue adverse impact to aesthetics and scenic beauty. Sufficient mitigation for this section is proposed in the section entitled "Mitigation Analysis for areas of Highest Aesthetic Sensitivity."

New Haven, in both its Town Plan and in an Article adopted at Town Meeting in 2000, clearly states its opposition to the upgrade. The article stated "Shall the Selectmen of the town of New Haven be directed and authorized to prevent the expansion of the VELCO electric transmission facilities within the township?" Passage of this resolution might be considered a community message, but it is not a standard with regard to aesthetic and scenic resources.

The 13 towns in three counties along the path of the proposed transmission line upgrades vary in the extent and content of written community standards regarding the aesthetic element of siting new or upgraded electric transmission facilities (lines, towers, and substations). The following is a town-by-town survey of excerpts, mostly from the most current adopted town plans.

RUTLAND COUNTY and TOWNS

In the Rutland Regional Plan, in the section on energy Goals #2 and #3 specify:

Goal 2 To encourage the placement of energy facilities and transmission infrastructure in a manner consistent with local and regional goals and policies.
Policy 1 Encourage the multipurpose use of existing utility corridors and the placement of proposed new or extended infrastructure in existing corridors, wherever possible.
Policy 2 Support local efforts to include policies to on the location and aesthetic impact of energy facilities and transmission infrastructure in their town plans.
Implementation Statement 1: Encourage and promote the use of existing utility corridors, whenever possible, for the placement of transmission lines.
Implementation Statement 2: Encourage towns to place necessary additional corridors along existing infrastructure and within designated, urban, town, village, commercial, and industrial land uses.
Implementation Statement 3: Encourage the location of substations in areas suited for them, i.e., industrial areas or areas planned for industrial use, whenever practicable. When not practicable, the facilities should be sited as unobtrusively as possible.
Goal 3 For aesthetic and safety concerns, and for continuity of service, encourage the underground placement of energy and communication lines where possible and economically practicable.

This plan continues on to emphasize that in development in rural areas:

Potential conflicts between agricultural uses and non agricultural uses should be minimized by:
o siting of non agricultural development on least productive soils;
o siting of non agricultural development in wooded areas or behind natural screens;
o siting to minimize impact on scenic vistas; and
o siting to minimize the effects of roads, sewage disposal systems, water supply systems, curb cuts, and power lines.

The West Rutland Town Plan

Scenic Resources – West Rutland lies in a valley that provides many opportunities for scenic vistas along the mountainsides surrounding the town. In WR, almost the entire western side has a slope classification greater than 25%. In the northeast part there

are also slopes greater than 25% as well as a few small areas located in the southeast part of town. These many hillside views provide a sense of enclosure to this community…Protect mountain tops and ridgelines with development restrictions such as zoning and subdivision regulations utilizing a ridge overlay district or specific ridgeline zoning. Energy – Conserve renewable and non-renewable energy resources

This town plan also stresses the importance of preserving town-designated scenic roads.

The Proctor Town Plan -

Scenic resources have aesthetic, historical and economic value. Siting of future construction as well as community facilities and infrastructure should always consider the potential impact on the aesthetic qualities of the community and preserve the undisturbed integrity, wherever possible, of Proctor's quality scenic and open space resources.

The Leicester Town Plan

There is limited information on scenic views/ no mention of utility pole conflict

The Pittsford Town Plan -

There is limited information on scenic views/ no mention of utility pole conflict

ADDISON COUNTY and TOWNS

The Addison County Regional Plan includes in their section on Energy Goals and Policies:

Policies:
4. Reduce pressures upon agricultural lands and preserve rural life-styles by discouraging large increments of growth and by resisting the construction of any new major powerplant which has as its primary purpose the provision of energy service to large urban markets in Vermont or in other states.
6. Discourage the construction of electric transmission lines in excess of 34.5kV.
7. Ensure that adequate consideration is given by the Public Service Board (PSB) to the interests of the Region prior to the issuance of any PSB permit involving he location of new bulk energy transmission facilities within the Addison Region for any energy source.
8. Any future energy planning studies or energy proposals that may result in projects having an impact on the Region must adequately address the interests of the Region.

The Salisbury Town Plan -

There is limited information on scenic views/ no mention of utility pole conflict

The Middlebury Town Plan -

The town is currently updating and revising current sections on utilities & energy

The New Haven Town Plan

To protect the natural, historic and aesthetic resources of the environment –
Maintain the natural appearance of ridges and steep slopes by restricting development, which may degrade scenic and environmental quality.
Protect the ecologically sensitive areas by encouraging cooperative efforts of conservation organizations and landowners.

This Town Plan specifically speaks to a need for the following:

A system to discourage new public utility expansion including but not limited to expanded upgraded electric transmission facilities that may have an adverse impact on viable agricultural operations and environmentally sensitive areas which poses health risks to citizens which poses threats to property or property values or which degrades scenic corridors and existing aesthetics.

Section 518 – Special public use exceptions – Unless reasonable provision is made in these bylaws for the location of any of the following uses, the following uses may only be regulated with respect to size height bulk yards, courts, setbacks, density of buildings, off-street parking and loading facilities and landscaping or screening requirements: Public utility power generating plants and transmission lines.

In 2000 on Town Meeting Day, New Haven passed a special article reading:

"Shall the selectmen of the Town of New Haven be directed and authorized to prevent the expansion of VELCO electric transmission facilities within the township?"

The Waltham Town Plan -

Protect and enhance the natural beauty and scenic characteristics of significance to local landscapes.

The Vergennes Town Plan -

Vergennes has areas of high scenic value especially in the Otter Creek Basin and in the Comfort Hill area – Scenic areas are an attraction for high quality housing.

The Ferrisburgh Town Plan -

Goal 4 –
To direct and manage growth in Ferrisburgh
To prevent adverse impacts on town services and transportation corridors
To maintain equitable enforcement of town regulations
To direct growth to locations that have suitable site conditions where there will be no adverse impacts on important resources and to be consistent with existing develop-

ment patterns

Goal 2 – To work with groups such as the conservation commission and Vermont land trust to protect natural resources, open space, farmland and views.

CHITTENDEN COUNTY and TOWNS

The Chittenden County Regional Plan makes no direct reference to the placement of lines, but emphasizes in Goal #6 of the Land Use plan that: "the best locations for new infrastructure … should be determined by the municipal plans and bylaws."

The Charlotte Town Plan -

Significant views and vistas – "Ubiquitous overhead utility lines for power, telephone and cable television have the impact of diminishing the town's scenic vistas, views and general landscape quality. These are important services but the vision for an aesthetically beautiful Charlotte includes the replacement of overhead lines with underground lines and requires the installation of new lines underground. It is the objective of the Town that all utilities will be underground."

This town plan also stresses the importance of preserving town-designated scenic roads.

5.8.12 Utility Distribution – Policies and Strategies (p.99)
1. New or replacement electrical, telephone, cable and other utility lines are encouraged to be located underground. In particular the Town seeks to protect public roads with high scenic value by placing utility transmission lines underground. Placing utility transmission lines underground reduces their negative impact to the landscape and potentially reduces long term maintenance.
2. The Town supports co-location of utility lines in existing rights of way in order to reduce impacts to scenery. New utility transmission line infrastructure should be located within existing rights of way unless the greater public good is better served by placing them elsewhere.

The Shelburne Town Plan –

Village land use: Shelburne Road shall be enhanced as the "Grand Avenue" of the village by maintaining the residential character of the structures, the spacing and setback of the structures and the visual qualities created by stately trees.
Strategies: Relocate overhead utility lines along Shelburne Road and upper Falls Road as recommended in the Village Plan. At a minimum, overhead utility crossings should be eliminated.
Natural / Visual Land Resource conservation
Objectives: There shall be no development which would cause alterations to the Town's open lands, shorelines, ridgelines, or roadside views in such a way that would intrude upon or diminish the scenic beauty of Shelburne.

The South Burlington Town Plan –

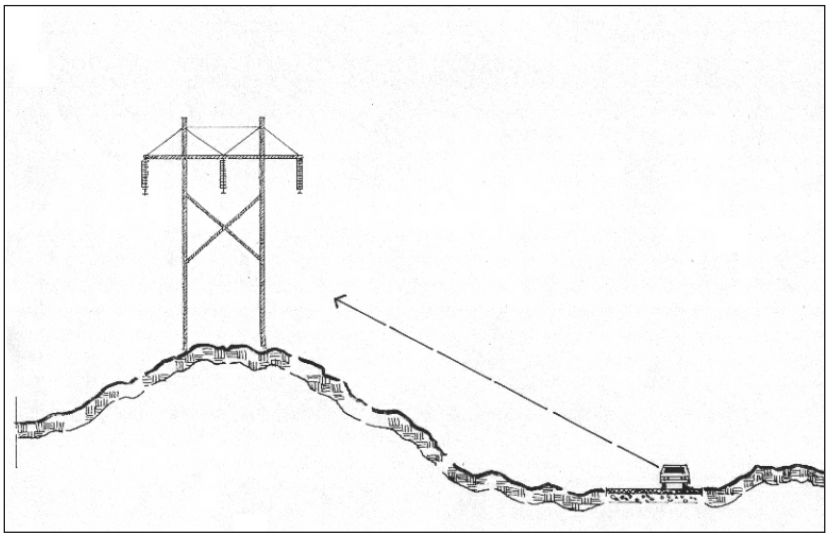
Future utility lines, including power as well as home and cable TV are encouraged to

be underground. Only if there is appropriate screening and unusually severe conditions that make undergrounding prohibitively expensive should waivers for the above ground utilities be considered. Future transmission lines should be confined to existing utility corridors and placed underground if possible.
The Utility corridor concept should be implemented as fully as possible to prevent the haphazard and piecemeal development of overhead power lines, new roadways and the like.

Introduction to Guidelines for Aesthetic Mitigation

The Guidelines provided in this section are germane to the mitigation measures being proposed in the section entitled Quechee Analysis and Mitigation Recommendations for Areas of Highest Aesthetic Sensitivity. In that section, reference is made to the guideline which presents an appropriate mitigation measure for the section area being reviewed.

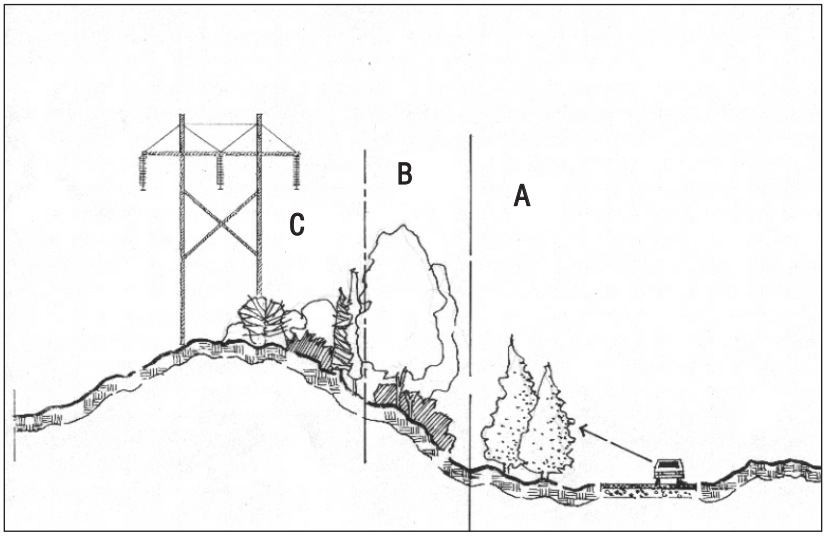
These guidelines are derived from a separate document entitled *"Guidelines for Reducing the Aesthetic Impact of Transmission Lines and Corridors"* prepared by LandWorks in concert with previous reviews of proposed transmission line projects conducted for the Vermont Department of Public Service.



G1

Undesirable Tower Placement: On a Hill

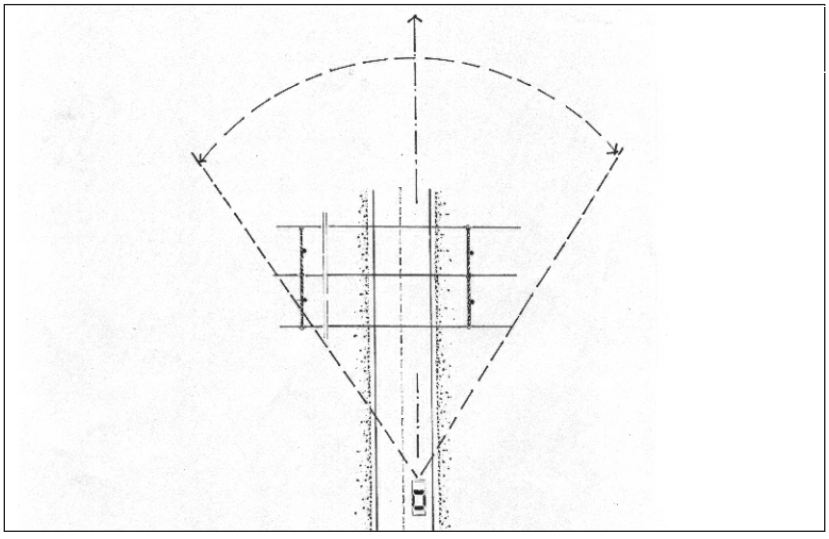
In many locations, and for reasons related to span efficiency, towers are located on high points. Unfortunately, this means that they are more visible and more visually intrusive.



G2

Recommended Planting Placement for Effective Screening

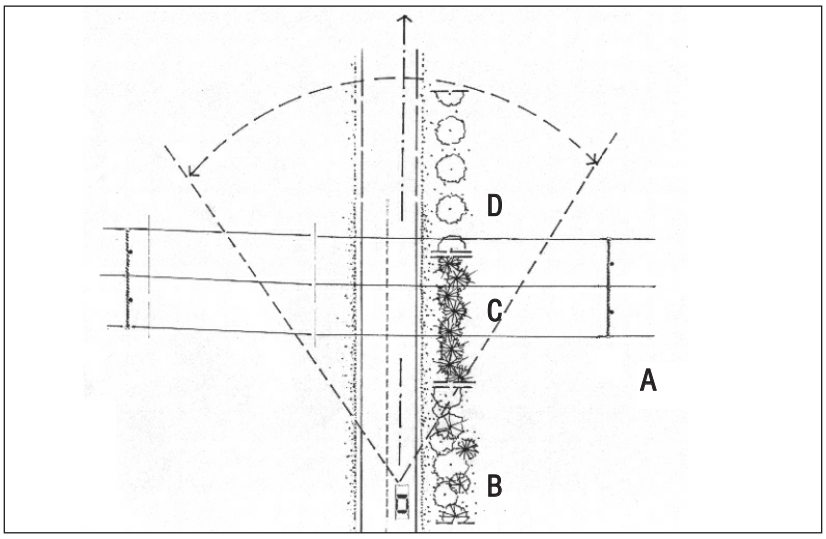
When towers must be sited on high points, screenings can be very effective in mitigating visual impacts:
(A) Plantings located adjacent to highway or specific viewing points are most effective in reducing /eliminating visual impact.
(B) 2nd option, plantings nearer to the tower location but outside the ROW "danger zone" for tree falling can reduce the presence and perceived impact of towers in the landscape. (C) Even scrub and lower plantings within the corridor ROW can contribute to reducing the impact of the power line cut as well as the pole visibility in the landscape by helping them to blend with the backdrop.



G3

Undesirable Tower Placement: In Cone of Vision

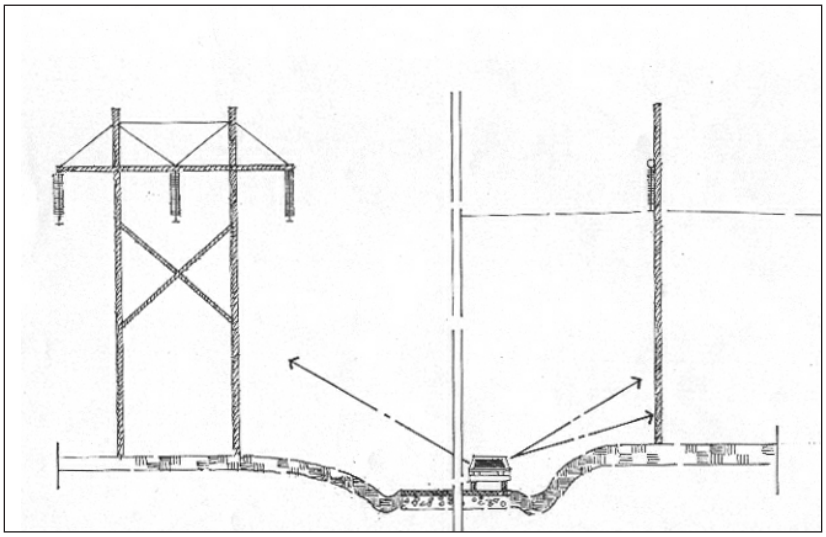
This plan view illustrates that the proximity of utility pole placement to the roadway may often be a factor in creating adverse visual impact if they are placed within the "cone of vision" of the driver or passenger in a vehicle.



G4

Methods of Screening Towers

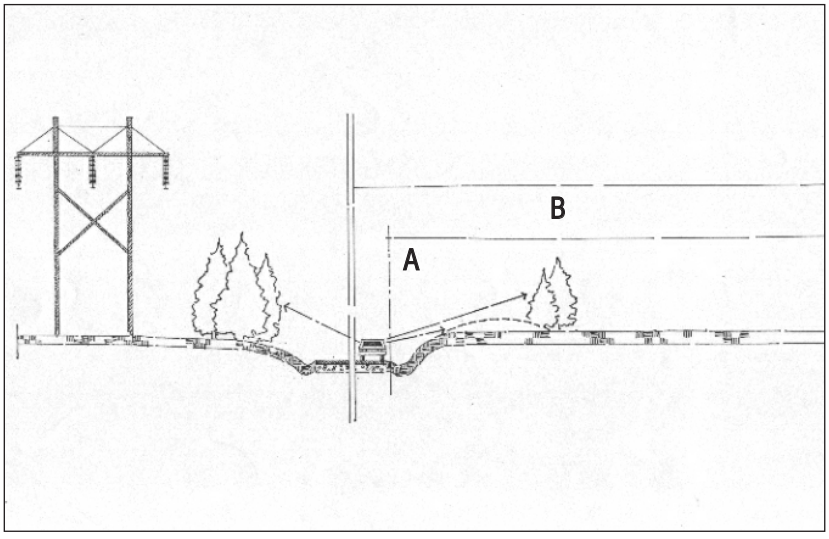
(A) Wherever possible, poles be located outside of the "cone of vision," as shown in the plan, even if it means higher poles to allow for longer spans. With or without poles located within the view of a driver or passenger, several mitigation options using the landscape should be considered:
(B) Maintaining and enhancing existing hedgerows; (C) Planting dense evergreen screening; (D) Establishing a pattern of street tree plantings which, while not hiding the towers, will serve to provide a foreground distraction or focus for the viewer.



G5

Undesirable Tower Placement too close to road

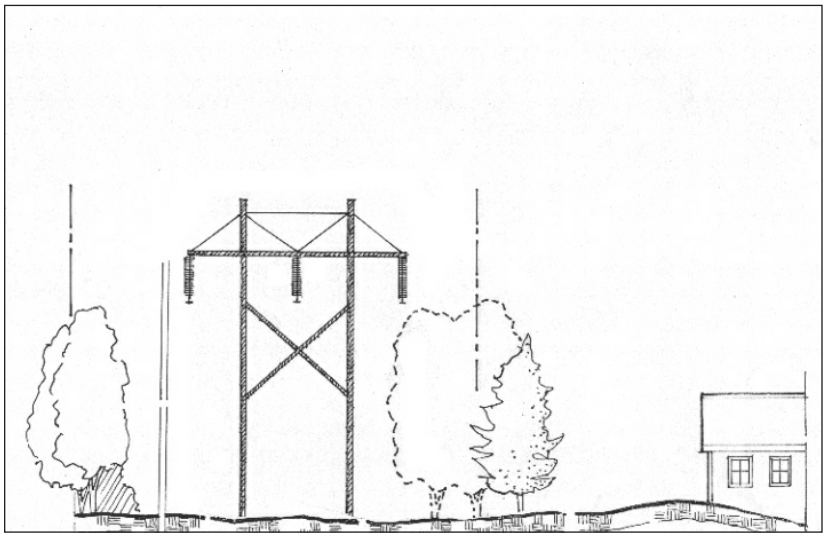
Towers placed close to roadways often seem out of scale and unduly obtrusive, undermining landscape values and visual quality. Adequate setbacks, planting for screening, and careful consideration of existing topography can be very effective in mitigating visual impacts.



G6

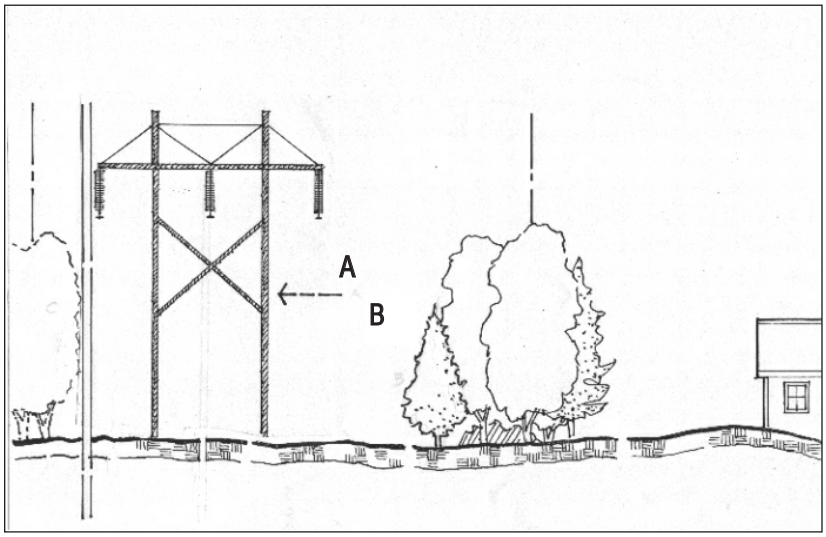
Screening via Berms and Evergreens

A) Depending on existing topography, a slight berm coupled with an adequate tower setback, can partially or completely screen a driver/passenger view of the corridor and towers. B) Properly located evergreen vegetation can also reduce or eliminate tower visibility. Evergreen placement should respond to the angle of view from inside a passing car.



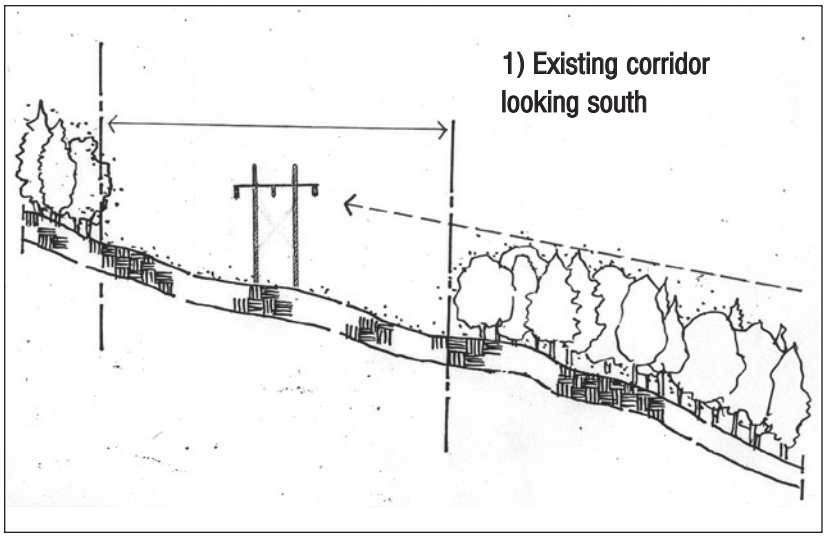
G7

Figure 4.10 Preserving existing buffers
(A) As the towers are added or increased in size, loss of trees which are part of existing buffers should be avoided.



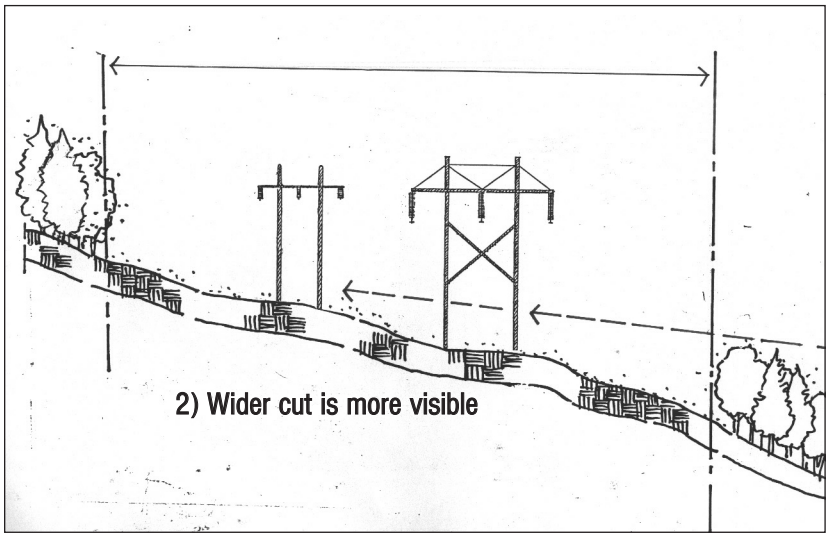
G8

Siting towers away from buffers
(A) If a choice exists it is recommended that new tower locations be shifted away from existing buffers. (B) Woodland screening should be enhanced with additional evergreen plantings.



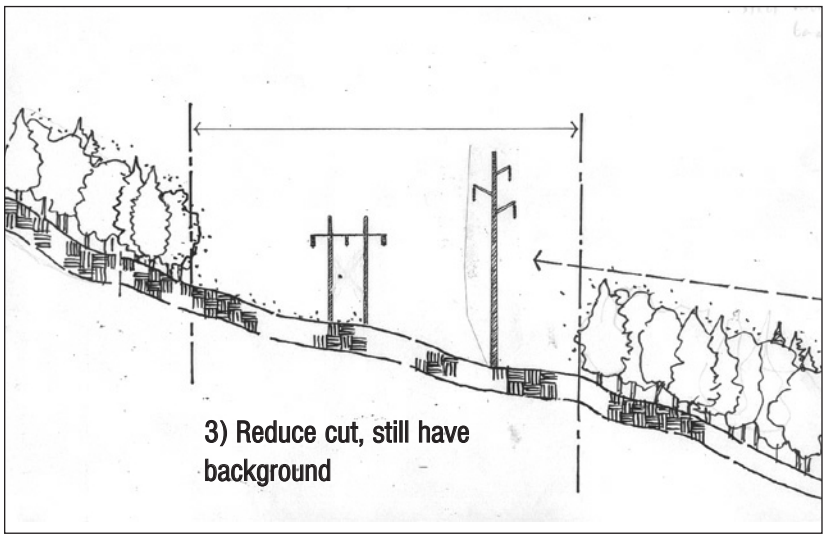
G9.1

150' ROW
Existing conditions on the West Rutland to New Haven 115 kV transmission corridor with the 150' Right of Way. The cut is too narrow to see from most places and the poles are backgrounded against the treeline of the ridge behind.



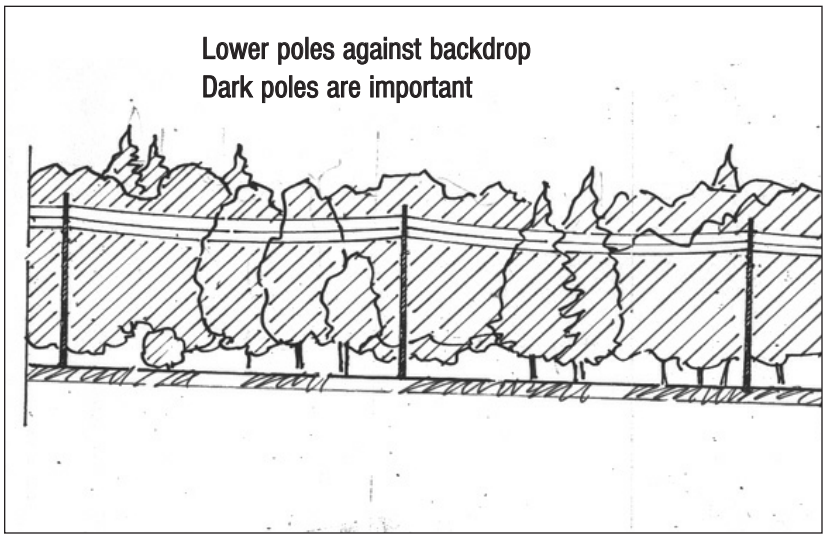
G9.2

Proposed 250' ROW
The addition of the 100 foot clearing to accommodate the proposed 345 kV towers will result in a "stripe" of ground seen from some locations. (this will be particularly noted on winter) The cut will also be more noticeable when viewing the line from a head on location.



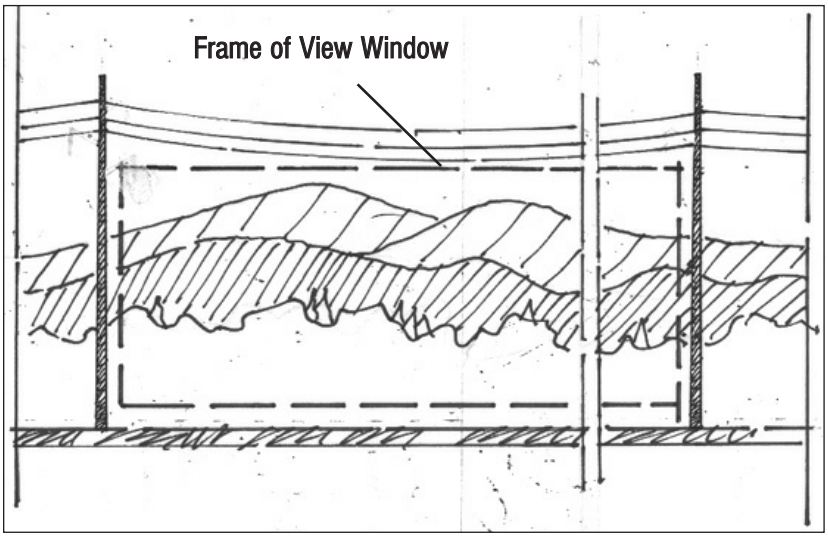
G9.3

Reduced 180' ROW
Using a single pole for the proposed 345kV line (or two single poles for the 115 and 345 Kv lines) will lessen the visual impact and reduce the potential for seeing a "stripe" from roads and residences in the vicinity. The higher single poles will still benefit from the background of trees and will not in most instances be "skylighted."



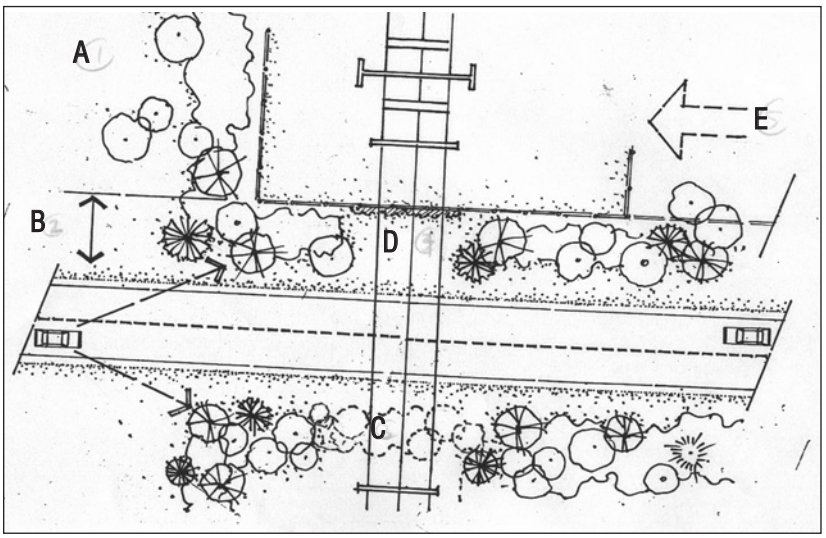
G10

Lines with lower pole heights and compact conductor/insulator arrays will lessen visual impacts particularly when placed against background trees that are only 40 to 59 feet in height. The taller 115 kV option will be skylighted in locations such as these and have a greater visual impact. Dark poles are important here.



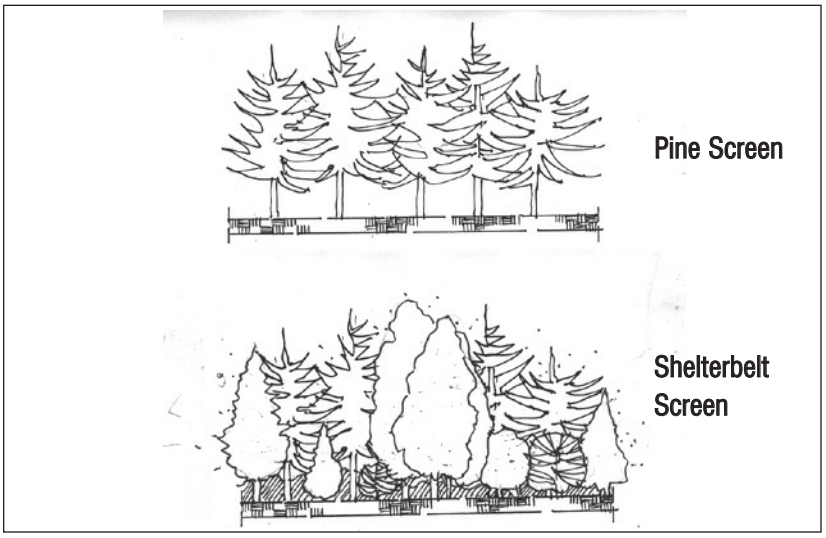
G11

In some instances, higher poles with longer clear spans may allow the poles and the conductors to provide a view of a distant landscape with interference. These locations should be carefully studied for this option and poles will have to be carefully placed.



G12

Options for screening substations include (A) dense shelterbelt screens of varying densities and widths, (B) setbacks from roadsides (to allow for sufficient planting), (C) "plugs" at crossings to de-emphasize lines and poles, (D) vines and black vinyl fencing help with screening and to fade fencing into the background and surrounds, and (E) access from the side, rather than directly from the road, means that there does not need to be an unscreened opening to the substation from the roadside. Suitable sizing is required for effective screening, including evergreens 8-10' to 10 to 12' high.



G13

Screening should not be developed with single species such as pines, planted in a row. Pines lose the lower branching over time and become much less effective for screening. Hedgerows or shelterbelts with widths of 2 or more plantings and irregular in form will better screen areas without calling attention to them. The shelterbelt approach is denser, provides better screening over time, uses a diversity of species, sizes and heights and provides habitat, adding value to the environment. These plant materials can be field grown.

Introduction to the Plant Materials Guide

This Plant Materials Guide is offered as an adjunct to the mitigation measures forwarded in this report. Where vegetative screening is proposed as part of the mitigation options offered in this analysis, it is recommended that this list of planting options be referred to in order to provide a wider range of options for effective landscaping.

This wider range of plant materials are offered in response to the limited palette that VELCO is relying on in its mitigation proposals for the NRP and to augment the recommended varieties listed in `Section V. C. Aesthetics in the "VELCO Four Year Right Of Way Vegetation Management Plan", dated April 15, 1999. The plant materials listed in the guide contained in this report will offer more diversity, and more options with regard to height and density for screening, buffering and habitat values. VELCO should also explore the use of cultivars of the listed species to provide options where screening is required but height is an issue. For example, cultivars of Thuja Occidentalis, such as the 'Techny' variety, provide screening but will only grow to a height of 15 feet typically.

LARGE TREES (Greater than 40' Tall)

Plant	Common Name	Ease of Transplant	Shade Tolerance	Growth Rate	Habitat/ Soil	Wildlife Value	Mature Size/Shape
Abies balsamea	Balsam Fir	Easy	Tolerant	Slow	Upland mesic	High: d, sb, sm	70'/ pyramidal
Acer saccharum	Sugar Maple	Easy	Very Tolerant	Medium	Upland mesic	Very High: d, sb, ugb, sm	100'/ globular
Acer rubrum	Red Maple	Less easy	Tolerant	Medium	Lowland wet, wet-mesic, upland dry	Very High: d, sb, ugb, sm	75'/ globular
Betula papyrifera	Paper Birch	Less easy	Tolerant	Fast	Upland mesic, mesic dr	Very High: d, sb, ugb, sm	75'/ globular
Betula alleghaniensis	Yellow Birch	Less easy	Tolerant	Medium	Upland mesic, mesic dr	Very High: d, sb, sm	75'/ globular
Fagus grandifolia	American Beech	Mod. Difficult	Very Tolerant	Slow	Upland mesic	High: d, sb, sm, ugb	90'/ ovoid
Fraxinus americana	White Ash	Less easy	Tolerant	Fast	Upland mesic, mesic dry	Low: sb, sm	100'/ irregular ovid
Picea glauca	White Spruce	Easy	Tolerant	Slow	Upland dry	High: d, sb, sm	75'/ pyramidal
Picea rubens	Red Spruce	Easy	Tolerant	Slow	Upland dry	High: d, sb, sm	65'/ pyramidal
Picea mairana	Black Spruce	Easy	Tolerant	Slow	Lowland wet	High: d, sb, sm	65'/ conical
Pinus resinosa	Red Pine	Less easy	Intermediate	Medium	Upland mesic-dr	Very High: d, sb, ugb, sm	75'/ pyramidal
Pinus strobus	White Pine	Easy	Intermediate	Medium	Upland mesic	Very High: d, sb, sm, ugb	50'/ conical-ovid
Populus alba	White Poplar	Very easy	Very Intolerant	Fast	Upland mesic, mesic dr	High: d, sb, ugb, sm	50'/ columnar
Prunus serotina	Black Cherry	Less easy	Intolorant	Fast	Upland mesic, mesic	Very High: sb, sm	50'/ columnar - ovid
Quercus rubra	Northern Red Oak	Difficult	Tolerant	Medium	Upland mesic, mesic dr	Very High: d, sb, sm, ugb	100'/ globular
Thuya occidentalis	Arborvitae & cultivars	Easy	Tolerant	Fast	Upland and Lowland	Intermediate	varies/ conical to ovoid
Tilia americana	Basswood	Easy	Very Tolerant	Medium	Upland mesic	Very low	100'/ ovoid
Tsuga canadensis	Hemlock	Difficult	Very Tolerant	Medium-slow	Upland mesic	Intermediate: d, sb, sm	100'/ broadly conical

MEDIUM TREES AND SHRUBS (Between 20' and 40' Tall)

Plant	Common Name	Ease of Transplant	Shade Tolerance	Growth Rate	Habitat/ Soil	Wildlife Value	Mature Size/Shape
Acer pensylvanicum	Striped Maple	Mod. Difficult	Very Tolerant	Slow	Upland mesic	Very High: d, sb, sm, ugb	35'/ ovoid-globular
Acer spicatum	Mountain Maple	Mod. Difficult	Very Tolerant	Slow	Upland mesic	Very High: d, sb, ugb, sm	30'/ irregular ovoid
Amelanchier	Serviceberry	Less easy	Very Tolerant	Medium	Upland mesic	High: sb, sm	40'/ globular-ovoid
Betula populifolia	Gray Birch	Less easy	Very Intolerant	Fast	Lowland wet, Upland dr	Very High: d, sb, wb, sm	40'/ columnar
Cornus alternifolia	Pagoda Dogwood	Less easy	Very Tolerant	Slow	Upland mesic	Very High: ugb, sb, wb, lm, s, m, d	30'/ ovoid
Carpinus carolina	Hornbeam	Mod. Difficult	Intolerant	Slow	Lowland wet mesic, upland mesic	Very Low: sb, wf	40'/ globular
Crataegus	Hawthorne	Less easy	Intolerant	Slow	Lowland wet mesic, upland dr	Intermediate: sb, ugb, lm, sm	30'/ globular
Ostra virginiana	Hop Hornbeam	Mod. Difficult	Intolerant	Slow	Upland mesic, mesic dry	Low: sb, sm	40'/ conical
Sorbus americana	Mountain Ash	Easy	Intolerant	Medium	Lowland wet, wet-mesic, upland mesic	Intermediate: wf, sb, sm, lm	25'/ ovoid
Viburnum lentago	Nannyberry	Easy	Intermediate	Fast	Upland mesic-dr , dr	High: sb, ugb, sm	30'/ ovoid

SMALL SHRUBS (Less than 20' Tall)

Plant	Common Name	Ease of Transplant	Shade Tolerance	Growth Rate	Habitat/ Soil	Wildlife Value	Mature Size/Shape
Cornus racemosa	Gray Dogwood	Less Easy	Tolerant	Medium	Wet mesic, mesic-dry, dry	Very High: wf ugb, sb, lm, sm	10'/ ovoid
Cornus stolinfera	Red-osier Dogwood	Mod. Difficult	Very Intolerant	Fast	Lowland wet	Very High: wf, mb, lm, sm, d	10'/ globular
Ilex verticillata	Common Winterberr	Easy	Intermediate	Slow	Wet, wet-mesic	High: wf, sb, sm, ugb	10'/ ovoid
Salix discolor	Willow	Easy	Very Intolerant	Fast	Lowland wet	High: sb, mb, wb, sm	15'/ globular
Vaccinum corymbosum	Highbush Blueberr	Easy	Tolerant	Slow	Lowland wet, wet-mesic	Very High: wf, sb, ugb, lm, s	10'/ globular
Viburnum alnifolium	Hobblebush	Easy	Very Tolerant	Medium	Upland mesic, mesic dry	High: ugb, sb, lm, sm, d	10'/ globular
Viburnum cassinoides	Witherod Viburnum	Easy	Tolerant	Medium	Wet, wet-mesic, mesic dry	High: ugb, sb, ms, lm, sm	10'/ globular
Viburnum trilobum	American Cranberrybush	Easy	Very Tolerant	Medium	Wet, wet-mesic, mesic dry	High: sb, sm	10'/ globular

Definitions of Habitat Types

Lowland Wet: River or lake margins, streamside floodplains, swamps, areas subject to inundation due to cyclic flooding in late winter/spring, slow draining areas, areas with excess surface drainage supporting standing water much of the time, cool areas of high humidity and high water table.

Lowland Wet-Mesic: Alluvial bottomlands and elevated terraces of major streams, soil moisture supply in excess of that falling as rain, areas of intermittent yearly flash flooding, areas with excess surface wetness in winter/spring to nearly xeric conditions during midsummer low water season.

Upland Mesic: Wet ravines and sheltered coves, moist but well drained slopes and uplands, generally north and east facing slopes, protection from direct sun exposure and prevailing dry winds, areas with cool air drainage, greater available soil moisture, reduced evaporation stress and stable temperature near the ground.

Upland Mesic-Dry: Dry slopes and upland flats, generally warmer south and west facing slopes, upland ridges and ravines, direct sun exposure accelerates evaporation stress, reduces available soil moisture and greatly increases temperatures near the ground.

Upland Dry: High banks, calcerous waterworn cliffs, steep rocky land, excessively drained sandy soils or shallow stony soils over rock outcrop.

Explanation of Wildlife Abbreviations:

sb: songbirds
ugb: upland ground birds
sm: small mammals
lm: large mammals
wf: water fowl
d: deer
wb: water birds
ub: upland birds